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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/090,597	03/01/2002	Hidekazu Kobayashi	81756.0001	7669

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EXAMINER

COLON, GERMAN

ART UNIT PAPER NUMBER

2879

DATE MAILED: 02/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

K.D

Office Action Summary	Application No. 10/090,597	Applicant(s) KOBAYASHI ET AL.	
	Examiner German Colón	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-24 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 09/297,482.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The Amendment, filed on July 31, 2003, has been entered and acknowledged by the Examiner.

Terminal Disclaimer

2. The terminal disclaimer filed on July 31, 2003 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of USPN 6,388,377 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 14, 15, 19, 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang (US 5,276,380) in view of Miyashita et al. (WO 98/24271).

Regarding claim 14, Tang discloses a method of manufacturing an EL element comprising:

forming a first electrode group 107 by a predetermined arrangement of a plurality of first electrodes on a substrate;

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forming a bank group **109** by a predetermined arrangement of a plurality of banks intersecting with the first electrode group;

forming an EL material layer **103** by depositing an EL material in between the banks; and

forming a second electrode group **R** separated by the banks by depositing a second electrode material onto the EL material layer.

Tang fails to disclose the EL layer being formed with liquid material such that at least a bottom region between the banks is filled with the liquid material; Tang discloses a vapor deposition method.

However, in the same field of endeavor, Miyashita discloses a method of producing organic EL elements and teaches that forming the EL layers with liquid material such that at least a bottom region between banks is filled with the liquid material (ink-jet system) makes possible to easily effect the patterning within short periods of time while maintaining precision, to easily design films, to optimize the light-emitting property, and to easily adjust the light-emitting efficiency. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teachings of Miyashita of forming the EL layers with liquid material such that at least a bottom region between banks is filled with the liquid material (ink-jet method) in order to easily effect the patterning within short periods of time while maintaining precision, to easily design films, to optimize the light-emitting property, and to easily adjust the light-emitting efficiency.

Regarding claim 15, Tang discloses the banks being formed such that an angle between side-faces thereof and a face on which the banks are installed is a right angle, and the second

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electrode group is formed by depositing the second electrode material by oblique vapor deposition from a direction confronting the sides (see Fig. 2 and Col. 6, lines 39-40 and 54-57).

Referring to claim 19, Tang discloses the arrangement being a parallel arrangement (see Fig. 2).

Referring to claim 20, Tang discloses the banks being formed such that an angle between side-faces thereof and a face on which the banks are installed is a right angle, and the second electrode group is formed by depositing the second electrode material by oblique vapor deposition from a direction confronting the sides (see Fig. 2 and Col. 6, lines 39-40 and 54-57).

Referring to claim 24, Tang discloses the arrangement being a line arrangement.

5. Claims 16, 17, 21, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang-Miyashita as applied to claim 19 above, and further in view of Shi et al. (U 5,773,931).

Regarding claim 16, Tang-Miyashita discloses the claimed invention except for the limitation of “the banks being formed such that an angle between at least one side face of the banks and a face on which the banks are installed is an acute angle, and the second electrode group is formed by depositing the second electrode material by oblique or vertical direction vapor deposition”.

However, in the same field of endeavor, Shi discloses an OLED with banks being formed such that an angle between at least one side face of the banks and a face on which the banks are installed being an acute angle (see Figs. 4 and 6) and the second electrode group is formed by vapor deposition from a vertical direction of the banks in order to provide an easy and discrete pixelation of the display, avoiding the difficulties of an angle technique in a commercial

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manufacturing line which increases the cost and reduces the production yield (see Col. 2, lines 1-5 and 19-27). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the banks with an acute angle formed between at least one side face and a face on which the banks are installed since Shi teaches that such a configuration allows for an easy and discrete pixelation of the display, avoiding the difficulties of an angle technique in a commercial manufacturing line which increases the cost and reduces the production yield.

Regarding claim 17, Tang-Miyashita-Shi discloses the banks being formed such that an angle between at least one side face of the banks and a top face thereof is an acute angle, the second electrode being formed by vapor deposition from a vertical direction of the banks (see Fig. 5 of '931). The same reasons for combining stated in claim 16 apply.

Referring to claims 21 and 22, claims 21 and 22 are rejected over the same reasons stated in the rejection of claims 16 and 17, respectively.

6. Claims 18 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tang-Miyashita as applied to claims 14 and 19 above, and further in view of Niboshi et al. (US 6,198,215).

Regarding claim 18, Tang-Miyashita discloses the claimed invention except for the limitation of "at least one of a non-glare treatment or antireflection treatment being carried out on a surface of the EL element". However, in the same field of endeavor, Niboshi discloses an EL device with an anti-reflective layer in order to reduce the reflection of ambient light and improving the contrast ratio of the display, improving the quality of the image (see Col. 2 lines

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34-39 in view of Col. 1, lines 44-45 and 54-57). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide an anti-glare or anti-reflective layer to the EL element with the purpose of reducing the reflection of ambient light and improving the contrast ratio of the display, improving the quality of the image.

Referring to claim 23, claim 23 is rejected over the reasons stated in the rejection of claim 18.

7. Claims 14, 16, 17, 19, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagayama et al. (EP 0 732 868) in view of Miyashita et al. (WO 98/24271).

Regarding claim 14, Nagayama discloses a method of manufacturing an EL element comprising:

forming a first electrode group 3 by a predetermined arrangement of a plurality of first electrodes on a substrate;

forming a bank group 7 (or 70) by a predetermined arrangement of a plurality of banks intersecting with the first electrode group;

forming an EL material layer 8 by depositing an EL material in between the banks; and

forming a second electrode group 9 separated by the banks by depositing a second electrode material onto the EL material layer.

Nagayama fails to disclose the EL layer being formed with liquid material such that at least a bottom region between the banks is filled with the liquid material; Nagayama discloses a vapor deposition method (see Col. 10, lines 13-17).

However, in the same field of endeavor, Miyashita discloses a method of producing organic EL elements and teaches that forming the EL layers with liquid material such that at least a bottom region between banks is filled with the liquid material (ink-jet system) makes possible to easily effect the patterning within short periods of time while maintaining precision, to easily design films, to optimize the light-emitting property, and to easily adjust the light-emitting efficiency. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the teachings of Miyashita of forming the EL layers with liquid material such that at least a bottom region between banks is filled with the liquid material (ink-jet method) in order to easily effect the patterning within short periods of time while maintaining precision, to easily design films, to optimize the light-emitting property, and to easily adjust the light-emitting efficiency.

Regarding claim 16, Nagayama discloses the banks being formed such that an angle between at least one side face of the banks and a face on which the banks are installed is an acute angle, and the second electrode group is formed by depositing the second electrode material by oblique or vertical direction vapor deposition (see Figs. 7B, 7D and 7G).

Referring to claim 17, Nagayama discloses the banks being formed such that an angle between at least one side face of the banks and a top face thereof is an acute angle, the second electrode being formed by vapor deposition from a vertical direction of the banks (see Figs. 7C, 7D and 7G).

Referring to claim 19, Nagayama discloses the arrangement being a parallel arrangement (see Figs. 2 and 8).

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Regarding claims 21 and 22, claims 21 and 22 are rejected over the same reasons stated in the rejection of claims 16 and 17, respectively.

Response to Arguments

8. Applicant's arguments filed July 31, 2003 have been fully considered but they are not persuasive.

i. Applicant argues that Miyashita et al. (WO 98/242271) fails to teach the limitation of "forming an EL material layer in between the banks with liquid material such that at least a bottom region between the banks is filled with liquid material" (see Remarks, Page 6, lines 10-13).

However, Miyashita discloses the formation of an EL material layer by an ink-jet process. As is well known in the art, an ink-jet process comprises the deposition of "jets" of a liquid material onto a surface. It is unclear how the ink-jet method disclosed by Miyashita is different from the claimed invention. Thus, the burden of demonstrating that an ink-jet method does not satisfy the limitation of filling a region between the banks with liquid material is on the Applicant.

ii. Applicant argues that the cited references fail to teach or suggest the limitation of "the banks are formed such that an angle between at least one side face of the banks and a face on which the banks are installed is an acute angle" (see Remarks, Page 7, lines 9-12).

The Examiner disagrees. At least Figs. 4 and 6 of Shi et al. (US 5,773,931), and Figs. 7B, 7D and 7G of Nagayama et al. (EP 0 732 868) clearly show the aforementioned limitation.

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On said figures, at least one side face of the banks and a face on which the banks are installed form an acute angle.

iii. Applicant argues that the cited references fail to teach or suggest the limitation of “the banks are formed such that an angle between at least one side face of the banks and a top face thereof is an acute angle” (see Remarks, Page 9, lines 2-4).

The Examiner disagrees. At least Fig. 5 of Shi '931, and Figs. 7C, 7D and 7G of Nagayama et al. (EP 0 732 868) clearly show the aforementioned limitation. On said figures, at least one side face of the banks and a top face thereof form an acute angle.

For the reasons stated above the rejection of claims 14-24 is deemed proper.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to German Colón whose telephone number is 571-272-2451. The examiner can normally be reached on Monday thru Thursday, from 8:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


gc


**KENNETH J. RAMSEY
PRIMARY EXAMINER**